proteins isolated from seeds that include a mutation of asparagine to arginine. Applicant disagrees.

Claim 1 recites a nucleic acid comprising a modified gene encoding a non-mammalian anti-microbial protein, the gene including a sequence that codes for an amino acid sequence that is *identical* to the anti-microbial protein produced by the natural host *except* that the coding sequence includes one or more alterations that *disrupt one or more mammalian post-translational processing events* so that the non-mammalian protein is produced and secreted by mammalian cells in its active form.

The claimed nucleic acids encode amino acid sequences that are modified from sequences produced by the natural host. The modifications include alterations that disrupt one or more mammalian post-translational processing events in the encoded amino acid sequence. What constitutes post-translational processing events is described at page14, lines 5-9 of the specification and includes glycosylation events, methylation, disulfide bond formation, acetylation, phosphorylation and sialylation. A specific glycosylation site is described at page 14, line 17 to page 15, line 6.

Brockaert et al. discloses two proteins Rs-AFP1 and Rs-AFP2 that differ in amino acid sequence by only two amino acids. Example 22 explains that because the activity of Rs-AFP2 is higher than Rs-AFP1 and a full-length cDNA clone of Rs-AFP2 is not available, site directed mutagenesis was performed on the Rs-AFP1 cDNA to make it *identical* to the Rs-AFP2 sequence (column 24, lines 26-32). The resulting modified sequence does not differ from the Rs-AFP2 sequence produced by the host as do the nucleic acid sequences of the claimed invention. The asparagine to arginine mutation at position 27 of the mature protein has nothing to do with disrupting a post-translational modification site. The asparagine to arginine mutation

at position 27 of the mature protein has nothing to do with disrupting a post-translational modification site (column 24, lines 59-64). Moreover, nowhere in Brockaert et al. is there any mention of disrupting post-translational processing events. Brockaert et al. simply want to produce a cDNA that encodes a naturally occurring protein that is currently unavailable by modifying a cloned cDNA that is identical to it by all but 2 amino acids.

Based on these facts, Brockaert et al. cannot anticipate the presently claimed invention. Withdrawal of this rejection is requested.

Conclusion

Applicant requests consideration of the above Remarks and allowance of the claims. Please charge any fees that may be required, or credit any overpayments, to our Deposit Account No. 03-1721.

Respectfully submitted,

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I hereby certify that this correspondence is being deposited with the United States Postal Service as first class mail in an envelope addressed to: Assistant Commissioner For Patents, Washington, D.C. 20231
on April 14, 2003
Kathy Hart Gagnon